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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,587	02/06/2004	Masahiro Takahashi	0553-0397	6735

7590 07/31/2008

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ART UNIT	PAPER NUMBER
2879	

MAIL DATE	DELIVERY MODE
07/31/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

The Amendment, filed on 7/18/08, has been entered and acknowledged by the Examiner.

In light of amendment (filed 6/19/08) the objection to Drawing has been withdrawn.

Claims 1,4,5,8,9,14,15,19,20,23,24,27,28,30,33,34,36 and 39 are pending in the instant application of which claims 1,4,9,14,20,23,28,30,33,34,36 and 39 are allowed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5, 8, 15, 19, 24, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,894,431 to Yamazaki et al., U.S. Patent 5,003,221 to Shimizu and further in view of U.S. Patent Application Publication 20010016262 to Toyoshima et al.

Regarding claim 5 Yamazaki ('431)discloses (Fig. 7 column 10 lines 20-42) a first substrate 400 having insulating surface, a first electrode (cathode)701 formed over the

substrate, a layer of an organic compound formed over the first electrode, a second electrode (transparent anode)702 formed over the organic compound layer, a second substrate 704 formed over the second transparent electrode and resin 706 is filled in the gap between the second transparent electrode and the second substrate. Yamazaki discloses the configuration in which light is emitted in a direction towards the upper electrode (direction indicated by an arrow).

Yamazaki ('431) is silent about a transparent film in the path of the emission of light comprising silicon oxynitride over the second electrode and the refractive index of the transparent film gradually decreasing from the first interface at a side of the second electrode to a second interface at a side of resin.

Shimizu in relevant art of EL displays discloses (column 3 lines 11-28,) a thin film layer formed between two adjacent layers, the refractive index of the thin film layer is changed to be approximated to those layers toward the interfaces so that a difference in refractive index at the layer interface is minimized. Shimizu discloses (Fig. 1) the transparent thin film 12 of varying refractive index formed between a substrate 11 and a lower electrode layer when light is emitted from the substrate below and hence the transparent film 12 is formed in the path of emitted light so as to minimize reflection at interfaces between the respective layers and can efficiently emit light with high luminance.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include a transparent film formed over the transparent second electrode (refractive index 1.9) and between the second electrode and the resin

(refractive index about 1.49) filling the gap of display of Yamazaki('431),(because light is emitted from the top of the second electrode and resin) the refractive index of the transparent film decreasing from (1.9 to 1.5) the first interface (at the side of the second electrode) to the second interface (at the side of resin) as taught by Shimizu for this configuration provides transparent film in the path of light emission minimizing reflection at interfaces between the layers and efficiently light emission with high luminance.

Shimizu discloses silicondioxide film with varying refractive index (by varying the ratio of amount of silicon and oxygen in the film). Yamazaki('431) and Shimizu do not exemplify the transparent film comprising silicon oxynitride.

Toyoshima in pertinent art discloses (para [0009],[0013]) a film formed with silicon as target and oxygen and nitrogen used as reactive sputtering gas components so that silicon oxynitride film is formed having refractive index distributed broadly from 1.48 (refractive index of SiO_2) to 2.1 (refractive index of Si_3N_4). Hence siliconoxynitride is a transparent film which can provide varying refractive index. Toyoshima further teaches that this coating with changing amount of nitrogen and oxygen is transparent and shows no substantial absorption of visible light.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use transparent silicon oxynitride as the transparent film of Yamazaki ('431)and Shimizu as taught by Toyoshima since it has been held to be within the general skill of the worker in the art to select a known material based on its suitability for the intended use (MPEP 2144.07).

Regarding claim 8 Yamazaki('431) discloses (Figs. 8, 9 column 11 lines 42-65) the light emitting device is incorporated in video camera, playback DVD, mobile computers.

Regarding claim 15 Yamazaki('431), Shimizu and Toyoshima disclose all the limitations same as of claim 5 and additionally Toyoshima discloses (para [0009], [0012], [0013]) the transparent film comprising silicon, oxygen and nitrogen in which the composition ratio of oxygen increases (refractive index of SiO_2 1.48) so that the refractive index decreases toward the second interface and approximates to that of resin and the composition ratio of nitrogen decreases (refractive index of Si_3N_4 2.1)from the first interface at a side of the second electrode.

Regarding claim 19 Yamazaki('431) discloses (Figs. 8, 9 column 11 lines 42-65) the light emitting device is incorporated in video camera, playback DVD, mobile computers.

Claims 24, and 27 recite the limitations for the method of making the light emitting device which are essentially same as those of claims 5, and 8 and hence are rejected for the same reasons.

Response to Arguments

Applicant's arguments filed 6/19/08 and 7/18/08 regarding rejection of claims 5, 8,15,19,24,27 have been fully considered but they are not persuasive.

Regarding claim 5, Applicant's argues that Shimizu does not disclose transparent film formed over the second electrode, and the only reason for locating the thin film over the second electrode is hindsight reconstruction. The Examiner respectfully disagrees. Shimizu discloses (Fig. 1) the transparent thin film 12 of varying refractive index formed between a substrate 11 and a lower electrode layer when light is emitted from the substrate below and hence the transparent film 12 is formed in the path of emitted light so as to minimize reflection at interfaces between the respective layers and to efficiently emit light with high luminance.

Yamazaki discloses the EL device where light is emitting from the top and hence light emitted from the EL layer is passing through the second electrode and resin with two different refractive indices. **In order to minimize the reflection at the interfaces where light is emitted, the transparent film has to be disposed in the path of the emission of light.** Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to include a transparent film **formed over** the transparent second electrode (refractive index 1.9) and between the second electrode and the resin (refractive index about 1.49) filling the gap of display of Yamazaki('431), (because **light is emitted from the top of the second electrode and resin**) the refractive index of the transparent film decreasing from (1.9 to 1.5) the first interface (at the side of the second electrode) to the second interface (at the side of resin) from where light is emitted, as taught by Shimizu for this configuration provides **transparent film in the path of light emission** minimizing reflection at interfaces between the layers and efficiently light emission with high luminance.

In response to Applicant's allegation that Toyoshima discloses a coating of silicon oxynitride on the outside surface of the substrate the Examiner submits the following. Toyoshima discloses silicon oxynitride is a transparent film which can provide varying refractive index. Toyoshima further teaches that this coating with changing amount of nitrogen and oxygen is transparent and shows no substantial absorption of visible light.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute silicon dioxide film of Yamazaki ('431) as modified by Shimizu by transparent silicon oxynitride as the transparent film as taught by Toyoshima since it has been held to be within the general skill of the worker in the art to select a known material based on its suitability for the intended use (MPEP 2144.07). Because of the similar properties of varying refractive index of silicon oxynitride of Toyoshima and silicon dioxide of Yamazaki and Shimizu, the former transparent thin film can be substituted for the latter.

Therefore the Examiner asserts that Yamazaki, Shimizu and Toyoshima can be properly combined to suggest the limitations as claimed in claim 5 and the rejection is proper.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (571) 273-8300.

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/Sikha Roy/
Primary Examiner, Art Unit 2879